

**Amendments to the Drawings:**

The attached sheet of drawings includes changes to Fig. 3. This sheet replaces the original sheet of Figure 3. In Figure 3, previously omitted sequence identifiers SEQ ID NOs: 8 through 31 have been added.

Attachment: Replacement Sheet

Annotated Sheet Showing Changes

## **REMARKS / ARGUMENTS**

In response to the Office Action of August 30, 2010, Applicants have amended the specification, claims and Sequence Listing, which when considered with the following remarks, is deemed to place the present application in condition for allowance. Favorable consideration of all claims under examination is respectfully requested.

The Examiner has made final the previously-issued restriction requirement, and claims 2, 3, 7-13 and 15-20 have been withdrawn from consideration. Applicants reserve the right to file one or more divisional applications directed to the subject matter of the withdrawn claims.

### **Objections to the specification**

The disclosure has been objected to as allegedly not complying with the requirements of the Sequence Rules, 37 C.F.R. §§1.821-1.825. In particular, the Examiner has requested that sequence identifiers be added to the sequences depicted in Figure 3 and pages 6, 7 and 23. In addition, the Examiner has indicated the sequences set forth in Figure 3 as well as at pages 6 and 7, be added to the Sequence Listing.

In response, Applicants have amended the specification at pages 6, 7 and 23 to add sequence identifiers. By this amendment, "Motif 1", set forth on page 6 of the specification, has been assigned SEQ ID NO:6. "Motif 2", set forth in two places on page 7, has been assigned SEQ ID NO:7.

The primer prm582 set forth on page 23 of the specification was earlier assigned SEQ ID NO:4 and appeared in the Sequence Listing upon filing. Page 23 has been amended so that "SEQ ID NO:4" appears after the prm582 sequence. Likewise, the primer prm583 set forth on page 23 was earlier assigned SEQ ID NO:5 and appeared in the Sequence Listing upon filing. Page 23 has been amended so that "SEQ ID NO:5" appears after the prm583 sequence.

By this amendment, each of the sequences set forth in Figure 3 have sequence identifiers assigned. Thus, the various examples of Motif 1 are now indicated as SEQ ID

NOs: 8 through 19 in Figure 3 and have been added to the Sequence Listing. The various examples of Motif 2 are now indicated as SEQ ID NOs: 20 through 31 in Figure 3 and have also been added to the Sequence Listing. The Description of the Drawings has been amended to indicate that examples of Motif 1 are set forth in SEQ ID NOs:8-19 and that examples of Motif 2 are set forth in SEQ ID NOs: 20-31.

The disclosure has also objected to due to there being an embedded hyperlink and/or other form of browser-executable code. By this amendment, on page 12 of the specification (WO 2005/061702) the "<http://www.>" portion of <http://www.ncbi.nlm.nih.gov> has been deleted so that the hyperlink is disabled.

In view of the foregoing amendments to the specification and drawings, withdrawal of the objections to the specification is respectfully requested.

#### **Objections to the claims**

Claim 5 has been objected to as allegedly not confirming to the Sequence Rules because the sequences recited therein do not contain sequence identifiers. Claim 5 has also been objected to under 37 C.F.R. 1.75 (c) as allegedly of improper dependent form for failing to further limit the subject matter of a previous claims. By this amendment, claim 5 has been canceled without prejudice. The subject matter of claim 5 has been incorporated into claim 4 and the sequence identifier SEQ ID NO:7 has been added to claim 4.

Claim 6 has been objected to under 37 C.F.R. §1.75 (c) as allegedly of improper dependent form for failing to limit the subject matter of a previous claim. It is the position of the Examiner that claim 6 does not further limit claim 4 because claim 4 does not encompass all of the species recited in claim 6, since claim 4 is limited to a cyclin A2, selected from cyclin A2;1, cyclin A2;2, cyclin A2;3 and cyclin A2;4. As presently amended, claim 6 limits claim 4 because claim 6 has been amended to recite variant A2 sequences selected from cyclin A2;1, cyclin A2;2, cyclin A2;3 and cyclin A2;

Applicants have amended claim 1 so that the subject matter of claim 3 is now recited therein. Support for the amendments to claims 1 and 6 may be found on page 6

(starting with the penultimate paragraph) through line 5, page 7 of the specification (WO 2005/061702).

In view of the foregoing remarks and amendments, withdrawal of the objections to the claims is warranted.

**Rejection of claims under 35 U.S.C. § 112, second paragraph**

Claim 5 has been rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. According to the Examiner, claim 5 is indefinite because it recites amino acid motifs while the cyclin A2 of claim 4 is a cyclin A2 nucleic acid molecule. The examiner has suggested that claim 5 be amended to indicate that the cyclin A2 nucleic acid molecule encodes a cyclin A2 protein which comprises the recited motif in order to overcome the rejection. Claim 5 is presently canceled; however, the recommendations of the examiner have been incorporated into claims 1 and 4.

Claim 6 has been rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, claim 6 recites "said cyclin A" while depending from claim 4, which is limited to cyclin A2. As presently amended, claim 6 is also limited to cyclin A2. Withdrawal of the rejection of claim 6 under 35 U.S.C. § 112, second paragraph, is therefore respectfully requested.

**Rejection of claims over the prior art**

Claims 1 and 14 have been rejected under 35 U.S.C. §102(b) as allegedly anticipated by Helentjaris et al. (WO 00/6540, November 2, 2000). The reference is relied upon for allegedly teaching a method comprising introducing into a plant a cyclin A nucleic acid molecule which is operably linked to a seed-preferred promoter and a plant obtainable by such method. Examples 5, 6, and SEQ ID NOs 25 & 26 are particularly cited. The Examiner has asserted that while Helentjaris et al. are silent with respect to

whether their method is “for increasing plant yield”, the reference need not explicitly teach this limitation in order to anticipate the rejected claims, because the recitation in the claim is an intended use and is therefore not limiting.

In order to overcome the rejection, claim 1 has been amended to recite the step of “selecting a plant exhibiting at least one of increased seed weight, increased number of filled seeds, increased seed number, increased seed size, increased harvest index, increased thousand kernel weight or modified seed composition, each relative to a corresponding control plant” is introduced into claim 1. Support for the amendment to claim 1 may be found in the specification, e.g., paragraph bridging pages 4 and 5, as well as Examples 3 and 4.

Applicants respectfully submit that Helentjaris et al. do not teach a step for selecting a plant exhibiting at least one of increased seed weight, increased number of filled seeds, increased seed number, increased seed size, increased harvest index, increased thousand kernel weight or modified seed composition, each relative to a corresponding control plant. Claim 1 and claim 14 (dependent on claim 1) are therefore distinguished from Helentjaris et al. and the rejection under 35 U.S.C. § 102(b) should be withdrawn.

Claims 4, 5 and 6 have been rejected under 35 U.S.C. §103(a) as allegedly obvious over Helentjaris et al. in view of Roudier F. et al. (“The Medicago species A2-type cyclin is auxin regulated and involved in meristem formation but dispensable for endoreduplication-associated developmental programs” *Plant Physiol.* 2003 March; 131(3):1091-1103).

The Examiner admits that Helentjaris et al. do not explicitly teach a cyclin A2 nucleic acid molecule having the features recited in the rejected claims.

Roudier F. et al. has been cited for teaching a cyclin A2 nucleic acid molecule having the features recited in the rejected claims, in particular, the cyclin is designated cycA2;2 (GenBank Accession No. AAK81695, September 1, 2001, cyclin A2 [*Medicago sativa*]), as well as plants transformed with the nucleic acid molecule operably linked to a 35S promoter (page 1097 Figure 5, page 1098, Figure 6).


According to the Examiner, the present invention is allegedly obvious because the use of a cyclin A2;2 nucleic acid molecule in combination with a seed-preferred promoter would have been a simple substitution of equivalent elements (a seed-preferred promoter for a 35S promoter and/or a cyclin A2;2 for a cyclin a nucleic acid molecule) to obtain allegedly predictable results.

Applicants respectfully submit that there is nothing in the combination of teachings provided by the references which would have suggested to a skilled artisan at the time the invention was made, that transforming a plant with a nucleic acid molecule encoding a cyclin A operably linked to a seed-preferred promoter; would lead to plants exhibiting at least one of increased seed weight, increased number of filled seeds, increased seed number, increased seed size, increased harvest index, increased thousand kernel weight or modified seed composition, each relative to a corresponding control plant. Nor is there a suggestion that one of skill could, or should, select plants exhibiting one or more of these traits as presently recited in the claims. Absent a suggestion for the step of selecting a plant exhibiting at least one of increased seed weight, increased number of filled seeds, increased seed number, increased seed size, increased harvest index, increased thousand kernel weight or modified seed composition, each relative to a corresponding control plant, the subject matter recited in claims 4, 5 and 6 is not obvious and the rejection under 35 U.S.C. §103(a) should be withdrawn.

In view of the foregoing remarks and amendments, it is firmly believed that the present application is in condition for allowance, which action is earnestly solicited.

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**U.S. Appln. No. 10/584,024**  
**Replacement Sheet**

<b>Gene name</b>	<b>Plant accession</b>	<b>Motif 1</b>	<b>Motif 2</b>
<b>Cyclin A2;1</b>	<b>Arabidopsis At5g25380</b>	<b>WLVEVSEEEYKLVSDT</b> SEQ ID NO: 8	<b>ELTLTEYTFRLFLPS</b> SEQ ID NO: 20
<b>Cyclin A2;2</b>	<b>Arabidopsis At5g11300</b>	<b>WLVEVSDDYKLV PDT</b> SEQ ID NO: 9	<b>ELTLVEYSFLRFLPS</b> SEQ ID NO: 21
<b>Cyclin A2;3</b>	<b>Arabidopsis At1g15570</b>	<b>WLVEVSEEEYTLASDT</b> SEQ ID NO: 10	<b>ELTLIDYHFLKFLPS</b> SEQ ID NO: 22
<b>Cyclin A2;4</b>	<b>Arabidopsis At5g43080</b>	<b>WLVEVSEEEYTLVPDT</b> SEQ ID NO: 11	<b>ELTLM DYPFLKFLPS</b> SEQ ID NO: 23
<b>Cyclin A2type</b>	<b>Rice AK106653</b>	<b>WLVEVSEEEYKLV PDT</b> SEQ ID NO: 12	<b>ELTLIDYSFLKFLPS</b> SEQ ID NO: 24
<b>Cyclin A2type</b>	<b>Medicago AAK81695</b>	<b>WLVEVSEEGYKLQANT</b> SEQ ID NO: 13	<b>ELTLMNYGFLNFLPS</b> SEQ ID NO: 25
<b>Cyclin A2 type</b>	<b>Nicotiana BAA09367</b>	<b>WLVEVSEEEYRLVPDT</b> SEQ ID NO: 14	<b>ELTLVDYGF LKFLPS</b> SEQ ID NO: 26
<b>Cyclin A1;1</b>	<b>Arabidopsis At1g44110</b>	<b>WLIEVSEEEYRLVPET</b> SEQ ID NO: 15	<b>ELSLLEYTMLS HSPS</b> SEQ ID NO: 27
<b>Cyclin A1;2</b>	<b>Arabidopsis At1g77390</b>	<b>WLVEVAEEYRLSPET</b> SEQ ID NO: 16	<b>ELSLLDYAMLRYAPS</b> SEQ ID NO: 28
<b>Cyclin A3;1</b>	<b>Arabidopsis at5g43080</b>	<b>WLVEVAEEYKLLSDT</b> SEQ ID NO: 17	<b>ELSMLDYQSVKFLPS</b> SEQ ID NO: 29
<b>Cyclin A1.1 type</b>	<b>Rice BAA86628</b>	<b>WLVEVAEEYRLVPDT</b> SEQ ID NO: 18	<b>ELSLLEYNLLSYPPS</b> SEQ ID NO: 30
<b>Cyclin B1;1</b>	<b>Arabidopsis At4g37490</b>	<b>WLIDVHVRFELNPET</b> SEQ ID NO: 19	<b>ELGVMHYDTMIMFSPS</b> SEQ ID NO: 31

**FIGURE 3**

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Annotated Sheet Showing Changes

Gene name	Plant accession	Motif 1	Motif 2
Cyclin A2;1	Arabidopsis At5g25380	WLVEVSEEEYKLVSDT SEQ ID NO: 8	ELTLTEYTERLFLPS SEQ ID NO: 20
Cyclin A2;2	Arabidopsis At5g11300	WLVEVSDDYKLV PDT SEQ ID NO: 9	ELTLVEYSELRFLPS SEQ ID NO: 21
Cyclin A2;3	Arabidopsis At1g15570	WLVEVSEEEYTLASDT SEQ ID NO: 10	ELTLIDYHFLKFLPS SEQ ID NO: 22
Cyclin A2;4	Arabidopsis At5g43080	WLVEVSEEEYTLVPDT SEQ ID NO: 11	ELTLM DYPELKFLPS SEQ ID NO: 23
Cyclin A2type	Rice AK106653	WLVEVSEEEYKLV PDT SEQ ID NO: 12	ELTLIDYSFLKFLPS SEQ ID NO: 24
Cyclin A2type	Medicago AAK81695	WLVEVSEEGYK LQANT SEQ ID NO: 13	ELTLMNYGFLN FLPS SEQ ID NO: 25
Cyclin A2 type	Nicotiana BAA09367	WLVEVSEEEYRLVPDT SEQ ID NO: 14	ELTLVDYGE LKFLPS SEQ ID NO: 26
Cyclin A1;1	Arabidopsis At1g44110	WLIEVSEEEYRLVPET SEQ ID NO: 15	ELSLLEYTMLS HSPS SEQ ID NO: 27
Cyclin A1;2	Arabidopsis At1g77390	WLVEVAEEYRLSPET SEQ ID NO: 16	ELSLLDYAMLRYAPS SEQ ID NO: 28
Cyclin A3;1	Arabidopsis at5g43080	WLVEVAEEYKLLSDT SEQ ID NO: 17	ELSMLDYQSVKFLPS SEQ ID NO: 29
Cyclin A1.1 type	Rice BAA86628	WLVEVAEEYRLVPDT SEQ ID NO: 18	ELSLLEYNLLSYPPS SEQ ID NO: 30
Cyclin B1;1	Arabidopsis At4g37490	WLIDVHVR FELNPET SEQ ID NO: 19	ELGVMHYDTMIMFSPS SEQ ID NO: 31

↑ 24 new sequence identifiers added ↑

FIGURE 3